

Remarks

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

On page 2 of the Office Action, the Examiner has acknowledged the claim for priority. However, it is respectfully requested that the Examiner indicate such on the next Office Action summary form by checking the appropriate boxes in section 12.

It is also noted that the Examiner has returned a copy of the form PTO-1449 submitted with an Information Disclosure Statement on July 25, 2003. However, it appears that the Examiner has inadvertently failed to initial next to the two references listed on the form. A copy of this form PTO-1449 is submitted herewith. It is respectfully requested that the Examiner return an initialed copy of this form PTO-1449.

Further, the initially copy of the from PTO-1449 submitted with an Information Disclosure Statement on August 23, 2002 does not have the Examiner's initials next to the third reference listed in the "Foreign Patent Documents" section of the form. A copy of this form PTO01449 is also submitted herewith. It is respectfully requested that the Examiner return a completely initialed copy of this form PTO-1449.

The specification and abstract have been reviewed and revised to make a number of editorial revisions. A substitute specification and abstract have been prepared and are submitted herewith. No new matter has been added.

Claims 1-11 have been rejected under 35 U.S.C. §102(b) as being anticipated by Forrest (US 4,709,413).

Claims 1, 3, 6, 8 and 9 have been amended so as to further distinguish the present invention from Forrest.

In addition, claims 1-11 have been amended to make a number of editorial revisions. These revisions have been made to place the claims in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claims, nor to address issues related to patentability and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed feature offered by the Doctrine of Equivalents.

Claim 1 is patentable over Forrest, since claim 1 recites an optical transmission system having, in part, a transmitter with at least one lens for converging an optical signal

generated by a light emission element, wherein a vertex of the at least one lens is located at a predetermined distance from an input plane of a multi-mode fiber, the predetermined distance being greater or less than a distance from the vertex of the at least one lens to a focal point of the at least one lens, and the predetermined distance is selected based on an eye opening factor of the multi-mode fiber and a power of the optical signal. Forrest fails to disclose or suggest this feature of claim 1.

Forrest discloses a single-wavelength, by directional, fiber optic system having a pair of terminals 10 and 12 linked by a transmission fiber 14. Each of the terminals 10 and 12 is a transceiver which is capable of generating and receiving radiation at the same wavelength. Each of the terminals 10 and 12 includes a photodiode 22 having an active region 26 for receiving radiation, a light source 16 for transmitting radiation, a lens (coupling means) 30 for coupling the radiation from the light source 16, through a hole 32 in the photodiode 22, into the fiber 14. (See column 3, line 11 - column 4, line 49 and Figures 1 and 2).

Based on the above discussion and the illustration of Figure 2, it is apparent that the lens 30 is positioned with respect to the fiber 14 such that the focal point of the lens 30 does not correspond with an input plane of the fiber 14. However, Forrest fails to disclose or suggest that the distance between the lens 30 and the input plane of the fiber 14 is selected based on an eye opening factor of the fiber 14 and a power of the radiation transmitted by the light source 16. As a result, Forrest fails to disclose or suggest the present invention as recited in claim 1.

As for claim 3, it is patentable over Forrest for reasons similar to those discussed above in support of claim 1. That is, claim 3, like claim 1, recites, in part, at least one lens having a vertex located at a predetermined distance from an input plane of a multi-mode fiber, the predetermined distance being selected based on an eye opening factor of the multi-mode fiber and a power of the optical signal, which feature is not disclosed or suggested by Forrest.

Claim 6 is patentable over Forrest, since claim 6 recites an optical transmission system having, in part, a receiver with a receptacle for connecting to a multi-mode fiber to affix an output plane of the multi-mode fiber at a predetermined distance from a light-receiving plane of a light receiving element, wherein the light receiving element receives

a lower order mode of an optical signal and a higher order mode is prevented from entering the light-receiving plane of the light receiving element, and the predetermined distance is determined based on a core diameter of the multi-mode fiber, a diameter of the light-receiving plane, and a maximum angle among angles of modes of the optical signal outputted from an output plane of the multi-mode fiber which are capable of entering the light-receiving plane. Forrest fails to disclose or suggest these features of claim 6.

As discussed above, Forrest discloses the photodiode 22 having the active region 26 for receiving radiation from the fiber 14. (See Figure 2). However, Forrest fails to disclose or suggest that the photodiode 22 receives a lower order mode of the radiation from the fiber 14 and that a higher order mode of the radiation is prevented from entering the active region 26 of the photodiode 22. Further, Forrest fails to disclose or suggest a receptacle for connecting the fiber 14 to one of the terminals 10 and 12 at a predetermined distance, whereby the predetermined distance is determined based on a core diameter of the fiber 14, a diameter of the active region 26, and a maximum angle among angles of modes of the radiation outputted from the fiber 14 which are capable entering the active region 26 of the photodiode 22. As result, Forrest fails to disclose or suggest the present invention as recited in claim 6.

As for claim 8, it is patentable over Forrest for reasons similar to those discussed above in support of claim 6. That is, claim 8, like claim 6, recites, in part, a receiver having a receptacle for connecting to a multi-mode fiber to affix an output plane of the multi-mode fiber at a predetermined distance from a light-receiving plane of a light receiving element, wherein the light-receiving element receives a lower order mode of an optical signal and a higher order mode of the optical signal is prevented from entering the light-receiving plane, and the predetermined distance is determined based on a core diameter of the multi-mode fiber, a diameter of the light-receiving plane, and a maximum angle among angles of modes of the optical signal outputted from the output plane which are capable of entering the light-receiving plane, which features are not disclosed or suggested in the reference.

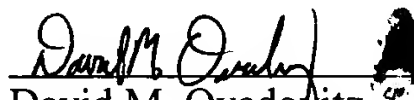
As for claim 11, it is patentable over Forrest for similar reasons as discussed above with respect to claim 1 and claim 6.

Because of the above mentioned distinctions, it is believed clear that claims 1-11 are not anticipated by Forrest. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to modify Forrest or to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-11. Therefore, it is submitted that claims 1-11 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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